# ABSTRACT

1       A multi-hop wireless Ad-Hoc network according to the present invention employs

2       a voice reservation protocol. The protocol supports voice and data communication and

3       incorporates retransmission and acknowledgement mechanisms. A TDMA frame

4       architecture is dynamically selected depending on voice mode operation (e.g.,

5       simplex/duplex) and associated retransmission/acknowledgement mechanisms. A source

6       node transmits a reservation packet that embeds TDMA frame architecture and other

7       information. The packet is transmitted to a destination node and is further piggybacked on

8       existing neighbor discovery packets to reduce overhead. Each intermediate network node

9       along the propagation path determines the manner in which to accomplish slot reservation

10       based on the embedded information in the reservation packet. The protocol may use

11       separate dedicated channels or a single channel for voice and data, and supports voice/data

12       load balancing over different channels. In addition, the protocol may utilize speech

13       silence and increased communication reliability to enhance performance.